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The Symptomatology of Psychological Trauma in the Aftermath of War (1945 to 1980): UK army veterans, civilians and emergency responders

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Abstract

Background. UK veterans suffering from a psychological or psychiatric illness as a consequence of service in the Second World War were entitled to a war pension. Their case files, which include regular medical assessments, are a valuable resource to investigate the nature, distribution and duration of symptoms.

Methods. A standardised form was used to collect data from pension records of a random sample of 500 UK army veterans from first presentation in the 1940s until 1980. Data was also gathered from 50 civilians and 54 emergency responders with a pension for post-traumatic illness following air-raids.

Results. The ten most common symptoms reported by veterans were anxiety, depression, sleep problems, headache, irritability/anger, tremor/shaking, difficulty completing tasks, poor concentration, repeated fears and avoidance of social contact. Nine of the ten were widely distributed across the veteran population when symptoms were ranked by the number of subjects who reported them. Nine symptoms persisted significantly longer in the veteran sample than in emergency responders. These included seven of the most common symptoms, together with two others: muscle pain and restlessness. The persistence of these symptoms in the veteran group suggests a post-traumatic illness linked to lengthy overseas service in combat units.

Conclusions. The nature and duration of symptoms exhibited by veterans may be associated with their experience of heightened risks. Exposure to severe or prolonged trauma seems to be associated with chronic multi-symptom illness, symptoms of post-traumatic stress and somatic expressions of pain that may delay or complicate the recovery process.

Key words: veterans, emergency responders, post-traumatic stress disorder, functional physical symptoms, psychological trauma.

Word Count: 3,789

Introduction

Post-traumatic stress disorder (PTSD) experienced by armed forces personnel and veterans is often more severe or complex than that suffered by civilians (Steenkamp *et al*. 2015; Murphy *et al*. 2015). This is in part because military PTSD is often accompanied by a range of mental and physical health conditions, notably depression, anxiety and alcohol abuse (Kulka *et al*. 1990). A cross-sectional study of four US infantry units conducted three to four months after return from combat duty found that the percentage of those meeting criteria for major depression, generalised anxiety and PTSD rose to between 15.6% and 17.1% for those who served in Iraq and rose to 11.2% for those who served in Afghanistan (Hoge *et al*. 2004). A cohort study of 9990 UK veterans deployed to Iraq and Afghanistan found a prevalence of 4.0% for probable PTSD, 19.7% for common mental disorders and 13.0% for alcohol misuse (Fear *et al*. 2010). However, there is increasing evidence to show that high levels of PTSD, common mental disorders and alcohol abuse in military populations are also accompanied by somatic symptoms. A follow-up study of 15,000 US Gulf War veterans conducted fifteen years after the conflict found that they reported significantly higher rates of unexplained multi-symptom illness and PTSD than did Gulf Era controls (Kang *et al*. 2009). A study of 2,863 US Army soldiers from four combat infantry brigades conducted one year after deployment to Iraq found one-third of soldiers who screened positive for PTSD had high somatic symptom severity, leading to sick call visits and missed work days (Hoge *et al*. 2007). Research into UK veterans suffering from delayed-onset PTSD showed that they had a gradual accumulation of symptoms and that these began earlier than those with immediate-onset, continuing throughout their military career (Andrews *et al*. 2009).

In addition to the presence of unexplained somatic symptoms, a range of factors have been identified to explain why military PTSD often proves treatment resistant. Service personnel are exposed to repeated traumatic experiences, including wounding or death; they are often young when deployed, and front-line troops are commonly recruited from those who have lower levels of education, greater exposure to childhood trauma and less social support during and after deployment (Xue *et al*. 2015). Features of post-service life have been proposed to explain why symptoms endure or may even be reinforced. Veterans commonly report feeling alienated from civilian life, whilst some experience guilt and shame as a result of roles they have performed or events that they have witnessed (Frankfurt &

Frazier, 2016). Coping strategies designed for combat, such as hyper-vigilance or emotional detachment, can inhibit recovery and reintegration in civilian life (Yehuda & Hoge, 2016). It is important, therefore, to research symptom patterns experienced by veterans with mental illness: the most common and those most resistant to change. It is also important to compare veterans with civilians and emergency responders exposed to similar traumas. UK war pension records have an established research utility and have been used to explore patterns of symptoms experienced by veterans of different conflicts (Jones *et al*. 2002a). A sample of 114 UK war pensioners with an award for PTSD served to investigate the impact of military trauma on veteran perceptions of civilian life (Brewin *et al*. 2011), whilst a study of 132 veterans in receipt of a war pension for psychological or physical injury found that most symptoms had first been identified during service rather than after discharge from the armed forces (Brewin *et al*. 2012). This study used data from war pension files to analyse the type and duration of symptoms reported by UK army veterans with a post-traumatic illness over the thirty-five years from the end of the Second World War.

Method

Subjects and data source

All subjects in the study, veterans, civilians and emergency responders alike, had been awarded a war pension for psychoneurosis by the Ministry of Pensions. Established in December 1916, the Ministry provided financial assistance for service personnel unable to earn a living wage following injury or disease suffered on campaign. On the outbreak of the Second World War, the Personal Injuries (Civilians) Scheme broadened the remit of the Ministry to include civilians injured by air-raids and other forms of enemy action (Shephard, 1999). To meet official criteria for a war pension, soldiers and civilians had to demonstrate that their symptoms were caused or aggravated by a traumatic exposure (Jones *et al*. 2002b). To test the validity of claims, the Ministry collected evidence from diverse sources, including service records, medical case notes, unit war diaries and bomb damage reports. In addition, applicants for a pension were subjected to medical examination by a panel of at least two doctors. If an award were granted, pensioners had to attend regular boards to assess the course of their illness (King, 1958). These were held at six- or twelve-month intervals until the disorder stabilised. Thereafter, pensioners were examined at a greater

interval. The amount paid was increased or reduced to reflect changes in the severity or range of symptoms, and awards were terminated if a veteran recovered.

Inclusive regulations and standard sets of forms ensured that the Ministry collected information in a systematic and consistent manner across the thirty-five years of this study. Case files included an application form which was supplemented by a medical assessment form. This had sections for medical tests and questions about symptoms, function and occupation and was administered every time the veteran was assessed by a medical panel. Further evidence was gathered by reports from specialists, family doctors and employers.

The classification system adopted by the Ministry was based on diagnostic terms and updated to reflect advances in medical knowledge. For psychiatric casualties, they employed the generic category, psychoneurosis with subgroups including effort syndrome and non-ulcer dyspepsia, to describe those with enduring psychological and psychosomatic illnesses related to war (Ministry of Pensions, 1943). Cases were selected using the term psychoneurosis to provide a measure of homogeneity for the three samples. If a medical investigation conducted by the Ministry's doctors revealed an underlying physical illness, such as peptic ulcer or heart disease, then the pensioner was excluded from the study. The assessment procedure and levels of compensation offered to civilians and emergency responders were the same as applied to veterans. An inclusive pension system presumed claims would succeed unless the Ministry could establish beyond reasonable doubt that the criteria had not been met.

The total number of Second World War pensions in payment peaked in 1947 at 567,300 (Ministry of Pensions, 1953, pp. 97-98). These included 48,000 pensions granted to civilians and Civil Defence workers, of which 24,000 remained in payment in 1956 (King, 1958, p. 30). Approximately 10% of UK war pensions were for neurological and mental disorders (Jones *et al*. 2002b). It was decided to limit the veteran sample to former members of the British Army because they were the largest service group in the archive and suffered significant psychological casualties. A sample of 500 was generated using a random number generator applied to a catalogue of army pensioners defined by diagnosis. No equivalent list existed for civilian and emergency responders. As a result, every case

identified by an internal audit was taken to create the two additional samples. Although the focus of the study was on army veterans, it was intended to generate larger samples of civilians and emergency responders, but their lower incidence and the absence of a searchable database restricted the numbers. As a result, they are included for context rather than direct comparison.

Data collection

The data analysed in this study was originally collected by the Ministry of Pensions to administer a welfare service rather than for the purposes of scientific study. Although this had the benefit of avoiding any artificiality that is sometimes associated with research, it required checks on entry criteria and the imposition of standard measures. To extract data from these records, the researchers used a standard form that form had been developed for an earlier study (Jones *et al*. 2002a). It included pension dates and level, biographical details, service history, exposure to traumatic events, 94 possible symptoms and employment history. Two researchers (AE and EJ) double-checked files to check consistency and accuracy of transcription. Information was recorded from pension files between January 1940 and December 1980 to capture all symptoms from their first presentation; other data included:

1. Subjects' demographic details including age, education, family history, occupation before and after war service, medical history.
2. Wartime record for veterans and emergency workers, nature of recruitment, unit, rank, date of enlistment, dates of discharge, time in combat and traumatic exposures.
3. 94 possible symptoms in the following groups: fatigue, cognition, cardiovascular and respiratory systems, gastrointestinal, genitourinary, central nervous system, locomotor system, eye, ear, nose, and throat, skin, psychological state, sleep problems, weight changes, and self-inflicted wounds. All symptoms were recorded with dates of presentation to track patterns of illness over time.
4. Results of medical investigations.

Statistical analysis

Because of computational limitations and the inevitable overlap in the information provided by the large number of symptoms, a distribution analysis of the 94 symptoms was conducted. This showed that the 25 most common accounted for 69.9% of the data and

these were selected for study. The number of individuals reporting each of these 25 symptoms was calculated by summing all those who reported the symptom at least once over the period for which records were available. Total symptom count was calculated by summing the number of years in which the symptom was reported by the entire sample. Comparisons of duration between groups were made using negative binomial regression, comparing the count of years in which each symptom was reported in individuals reporting it at least once. The analytical package used was Stata 14 (StataCorp, 2015).

Ethical standards

Ethical approval was obtained from the Institute of Psychiatry and Maudsley Ethics Committee (283/01) to obtain anonymised data from war pension files.

Results

Sample characteristics

All 500 veterans were male, whilst twelve of the 50 civilians were female, and one of the 54 emergency responders was female, a driver for the National Fire Service. Mean ages for the three groups were calculated from the date at which the first symptoms were recorded in the pension file: 28 years for the veteran sample, 50 years for the civilians, and 38 years for emergency responders. Table 1 summarises the military characteristics of veterans. Although most were private soldiers (65.6%), both officers (8.4%) and non-commissioned officers (25.8%) were over represented. Most veterans had deployed for overseas service (74.9%) and had experienced combat, 48.6% in infantry and armoured units, together with 28.6% as artillery and engineers. The veteran sample, therefore, is reflective of troops exposed to significant danger.

The emergency responder sample included 43 members of the National Fire Service (79.6%), men marginally too old for military service and not working in jobs considered vital for the war effort. Many had been conscripted and served in the London region where they were repeatedly exposed to danger or witnessed the wounding and death of civilians (Guttmann & Baker, 1945). The remaining emergency responders comprised two ambulance men (3.7%), four police officers (7.4%) and five air-raid wardens (9.3%). The civilian sample was more diverse in terms of age, gender and occupation. Thirty reported the cumulative

effects of sheltering during raids, whilst 17 experienced trauma at work, including four who were bus or train drivers exposed to bombing. Some civilians had been injured but continued to experience mental ill health after recovery from injury.

Symptom type and distribution

To explore common symptoms, they were ranked by the total number of times they were reported within a group (Table 2). The ten most commonly reported symptoms by veterans were: anxiety, depression, sleep problems, headache, irritability/anger, tremor/shaking, difficulty undertaking tasks, poor concentration, repeated fears and avoidance of social contact. They accounted for 67.2% of all veteran symptoms. To explore distribution within the sample, symptoms were also ranked by the number of veterans who reported them (Table 3). Anxiety and depression were ranked highest in by both total symptom count and subject report. Only two differences were found in the leading ten symptoms: avoidance of social contact was ranked lower and dizziness ranked higher by subject. These findings suggest that common symptoms were not concentrated within sub-groups of veterans but widely distributed across the sample.

The overall symptom count for the veteran sample was compared by decade to explore changes over time (Table 4). The ten most common symptoms represented 62.8% of those reported during the 1940s, rising to 67.7% in the 1950s and 70.0% in the 1960s. The proportion fell marginally to 69.0% in the 1970s as the veteran population began to encounter illnesses of old age. Nevertheless, anxiety and depression were consistently ranked first and second across all decades. In the 1960s and 1970s, difficulty undertaking tasks was replaced in the top seven by muscle pains. Irritability/anger rose in significance from seventh in the 1940s to fifth in the 1950s and was fourth for the final two decades.

Comparing the ten most common symptoms reported by the veteran sample with civilians and emergency responders revealed differences in type and ranking (Table 2). For the civilians, key differences were the inclusion of repeated fears in place of irritability/anger, which was ranked eleventh, whilst avoidance of social contact was ranked nineteenth. A greater contrast was presented by the emergency responders reported who reported three somatic symptoms (back pain, stomach pain and muscle pain) more often.

Anxiety was ranked third and depression was ranked thirteenth, significantly lower than the civilian sample (fifth) and the veterans (second). Muscle, stomach and back pain were commonly reported by veterans but were less significant in terms of the total symptom count.

Symptom duration

The mean duration of symptoms in years was calculated for all three groups (Table 5). Of the ten most common symptoms reported by veterans, seven were also the most persistent: anxiety, depression, irritability/anger, sleep problems, headache, avoidance of social contact and tremor/shaking. Other enduring symptoms were nightmares, muscle pain and restlessness.

Twelve symptoms lasted significantly longer for veterans than for civilians; these were the ten longest-lived, together with poor concentration and weakness. Nine of the ten persistent symptoms experienced by veterans lasted significantly longer than for the emergency responders, though a statistical comparison for avoidance of social contact was not possible as the symptom was not reported by anyone in the emergency responder sample. Although the mean duration for nightmares reported by veterans was 5.5 years, compared with 1.5 years for emergency responders, this was not statistically significant. Somatic pain in various forms was persistent in the veteran sample, notably: headache, muscle, back and stomach pain, together with dyspepsia. For the civilians, headache followed by anxiety and sleep problems endured the longest. Rapid or irregular heartbeat, stomach and back pain were especially long-lived for the emergency responders.

Discussion

The overall finding is that UK veterans of the Second World War reported a range of long-lasting symptoms, notably: anxiety, depression, nightmares, irritability/anger, sleep problems, headache, avoidance of social contact, muscle pain, restlessness and tremor/shaking. Whilst these symptoms are not sufficient to fulfil the criteria for a diagnosis of PTSD, they accord with several elements of the four-factor definition for *DSM-5* (American Psychiatric Association, 2013). Nightmares are a feature of Criterion B; irritability, restlessness and sleep problems meet Criterion E, whereas anxiety and avoidance fall within

Criterion D. Depression is commonly co-morbid with PTSD but also relates to negative thoughts and feelings included in Criterion D (Friedman *et al*. 2011). Although the data was collected from a period before PTSD was formally recognised, the symptoms can be interpreted as a manifestation of post-traumatic illness.

Persistent symptoms in the veteran population were not limited to psychological and behavioural categories but included muscle pain, back pain, shortness of breath, dyspepsia and stomach pain. Several contemporary studies have found an association between PTSD and chronic multi-symptom illness (CMI) in veteran populations (Kelsall *et al*. 2009; Coughlin *et al*. 2013). A study of 319 US veterans of the Iraq and Afghanistan conflicts found that 49.5% met the criteria for mild to moderate CMI and 10.8% for severe CMI. The study also found that 98% of veterans with PTSD symptoms also showed signs of CMI. By contrast, 44% of veterans with CMI did not have PTSD (McAndrew *et al*. 2016). An earlier study of 2,863 US Army soldiers from four combat infantry brigades conducted one year after deployment to Iraq found approximately, one-third of soldiers who screened positive for PTSD had high somatic symptom severity, leading to sick call visits and missed work days (Hoge *et al*. 2007).

Enduring symptoms, by definition, are those less likely to recover naturally with time. However, in the context of this study, they are not necessarily resistant to change as in the period to 1980 few, if any, specific treatments existed for post-traumatic illness. Veterans who had not suffered from poor mental health before the war were expected to recover naturally with time (Henderson & Batchelor, 1962). As exposure-based cognitive behaviour therapy was not established as an effective intervention until the early 1990s (O'Brien, 1998), UK veterans received only symptomatic treatment rather than targeted interventions during the period of this study.

Although symptom causality cannot be directly attributed, the characteristics of the veteran sample suggest an association with severe or repeated traumatic experience. Three-quarters had been deployed overseas, often to hostile environments such as desert or jungle, for lengthy periods, whilst 77% had served in combat units. Not only had many been exposed to extreme risk, they also had to manage issues of reintegration to what had

become an unfamiliar home environment (Allport, 2009). By contrast, civilian and emergency responders experienced trauma in their own communities and had a lesser issue of transition in peacetime. Emergency responders protected their own neighbourhoods and often had local support networks; they were saving lives whereas soldiers were trained and required to kill enemy combatants.

This study suggests that veterans are particularly hard to reach. Even in the 1950s and 1960s when National Service resulted in a significantly larger military footprint than today and when much of the UK population had first-hand experience of war, veterans avoided social engagement for much longer than emergency responders and civilians. Because of stigma, military personnel are known to be reticent in engaging in help-seeking for mental health problems (Iversen *et al*. 2010; Iversen *et al*. 2011). Avoidance of social contact by veterans has been found to impact adversely on overall rates of cognitive and functional impairment especially those with chronic conditions (Hofman *et al*. 2003).

The higher ranking of somatic symptoms in the emergency responder sample may be explained by the circumstances in which they worked. Of the 54, 80% were members of the fire service. Their rescue role subjected them to muscular and joint injuries, whilst night raids resulted in lengthy periods working or sleeping in wet clothes. Contemporary accounts suggest that doctors used a diagnosis of rheumatism as a means of giving emergency responders respite from arduous duties to avoid the stigma associated with psychological disorders (Bowland, 1947). For them, somatic symptoms may have served as a proxy for traumatic stress, in part, because the circumstances in which they operated provided a convincing illness narrative to justify temporary relief from duties.

Limitations

Larger samples of civilians and emergency responders had been sought but the absence of a searchable database limited the numbers that could be found. Because there were differences in the mean ages of the veterans (28), emergency responders (38) and civilians (50), we explored whether different death rates had an impact on the duration of symptoms. Over the thirty-five years to 1980, 15 civilians (30%), five emergency responders (9.3%) and 53 veterans (10.6%) died whilst in receipt of a war pension. This suggests that

the age of the more elderly civilian sample was in part responsible for the shorter duration of their symptoms when compared with veterans. However, the longer duration of veteran symptoms compared with emergency responders was not confounded by a population dying at a faster rate.

We also investigated whether the severity of illness at the time the pension was awarded was equivalent across all three groups as any differences had implications for the frequency and duration of symptoms. The Ministry assessed compensation on a scale of 0% to 100% as a measure of ill-health and the extent to which an injury or illness prevented an individual from earning a living. The average percentage at the time of the initial award was calculated for all three groups. No significant difference was found between the veteran sample (23%) and the emergency responders (25%). On average, pensions for civilians were assessed at 36%, suggesting that they suffered greater ill-health than the other two groups on first presentation.

The study is not representative of all UK veterans suffering from mental illness as the sample was limited to former members of the British Army and does not include those with a psychological disorder who did not apply for a pension. Currently, UK armed forces are composed entirely of volunteers. By contrast, 57% of the veteran sample had been conscripted. Although many conscripts were willing soldiers, given the need to defend the nation against invasion, they had not chosen the armed forces as a long-term career. Early service leavers are a feature of the UK's current armed forces; that is the volunteer who obtains a discharge within four years of joining the army (Buckman *et al*. 2013). There are likely to be differences in the motivation of the Second World War sample and veterans of recent conflicts. However, the training and battlefield experience of conscripts were no different to those of regular troops or volunteers. Indeed, in terms of their deployment overseas, the veterans of the Second World War have much in common with current UK ex-service personnel who have undertaken repeated tours of Iraq and Afghanistan.

Conclusion

The findings highlight the enduring nature of post-traumatic illness suffered by UK veterans of the Second World War. Although the commonly-reported symptoms suggest that a sub-

group might meet the criteria for PTSD, the picture is not clear cut as three of the ten most enduring symptoms are bodily expressions of pain. These have been identified in other veteran populations and are often disabling, chronic or intermittently relapsing, and associated with physical or functional comorbidity, and a decreased quality of life. This suggests that exposure to severe or prolonged trauma is also associated with chronic multi-symptom illness. More attention should be paid to the treatment of somatic symptoms not least because they may delay or complicate recovery. The comparison with civilians and emergency responders suggests that the nature and duration of symptoms exhibited by veterans may be associated with the heightened risks that they had experienced.

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Declaration of Interest

All authors declare no competing interests.

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Table 1. *Characteristics of the veteran sample*

Characteristics	n = 500 (%)
Status	
Regular	94 (18·8%)
Territorial	67 (13·4%)
Volunteer	48 (9·6%)
Conscript	286 (57·2%)
Not recorded	5 (1·0%)
Regiment	
Infantry	211 (42·2%)
Armoured units	32 (6·4%)
Royal Engineers	62 (12·4%)
Artillery	81 (16·2%)
Signals	16 (3·2%)
Royal Army Medical Corps	12 (2·4%)
Royal Army Ordnance Corps	26 (5·2%)
Royal Army Service Corps	44 (8·8%)
Royal Electrical and Mechanical Engineers	8 (1·6%)
Other	8 (1.6%)
Engagement Type	
Combat	243 (48.6%)
Combat Support	143 (28·6%)
Combat Service Support	102 (20·4%)
Non-Combatant	12 (2.4%)
Rank	
Officers	42 (8·4%)
Non-commissioned officers	129 (25.8%)
Other Ranks	329 (65·8%)
Deployment	
Home Service	128 (25·6%)
Deployed Abroad	372 (74·9%)

Table 2. *Total number of symptoms reported and ranked by group*

Symptoms	Veterans n = 500	Civilians n = 50	Emergency responders n = 54
Anxiety	3279 (1)	135 (1)	62 (3)
Depression	2143 (2)	91 (5)	19 (13)
Sleep problems	1640 (3)	105 (4)	51 (6)
Headache	1483 (4)	122 (2)	60 (4=)
Irritability/anger	1247 (5)	37 (11=)	26 (10=)
Tremor/shaking	1001 (6)	73 (6=)	43 (8)
Difficulty completing tasks	768 (7)	112 (3)	65 (2)
Poor concentration	753 (8)	50 (9)	14 (17=)
Repeated fears	737 (9)	73 (6=)	26 (10=)
Avoidance social contact	735 (10)	12 (19=)	0 (25)
Muscle pain	693 (11)	40 (10)	49 (7)
Dyspepsia	627 (12)	9 (22=)	21 (12)
Stomach pain	590 (13)	23 (15)	60 (4)
Dizziness	574 (14)	56 (8)	39 (9)
Restlessness	566 (15)	9 (22=)	7 (21)
Nightmares	541 (16)	20 (16)	3 (23=)
Shortness of breath	438 (17)	9 (22=)	14 (17=)
Weakness	410 (18)	18 (17)	18 (14)
Forgetfulness	391 (19)	37 (11=)	16 (16)
Back pain	385 (20)	34 (13)	78 (1)
Irregular heartbeat	353 (21)	12 (19=)	17 (15)
Exhaustion	315 (22)	24 (14)	14 (17=)
Fatigue	314 (23)	13 (18)	13 (20)
Apathy	311 (24)	12 (19)	6 (22)
Weight change	215 (25)	2 (25)	3 (23=)
Total	20509	1128	724

Numbers in brackets indicate ranking by number of symptoms reported.

Table 3. *Total number of subjects who reported a symptom*

Symptoms	Veterans (n =500) (%)	Civilians (n = 50) (%)	Emergency responders (n = 54) (%)
Anxiety	436 (87.2)	46 (92.0)	26 (48.1)
Depression	337 (67.4)	39 (78.0)	13 (24.1)
Headache	321 (64.2)	41 (82.0)	23 (42.6)
Sleep problems	317 (63.4)	41 (82.0)	24 (44.4)
Difficulty completing tasks	290 (58.0)	44 (88.0)	34 (63.0)
Tremor/shaking	270 (54.0)	35 (70.0)	22 (40.1)
Irritability/anger	239 (47.8)	23 (46.0)	14 (25.9)
Poor concentration	228 (45.6)	25 (50.0)	9 (16.7)
Repeated fears	222 (44.4)	28 (56.0)	15 (27.8)
Dizziness	211 (42.2)	25 (50.0)	18 (33.3)
Stomach pain	200 (40.0)	12 (24.0)	16 (29.6)
Dyspepsia	196 (39.2)	6 (12.0)	11 (20.4)
Exhaustion	193 (38.6)	18 (36.0)	12 (22.2)
Fatigue	190 (38.0)	9 (18.0)	5 (9.3)
Avoidance social contact	160 (32.0)	8 (16.0)	0
Irregular heartbeat	151 (30.2)	8 (16.0)	4 (7.4)
Muscle pain	151 (30.2)	19 (38.0)	24 (44.4)
Restlessness	150 (30.0)	8 (16.0)	7 (12.7)
Forgetfulness	149 (29.8)	19 (38.0)	7 (12.7)
Shortness of breath	134 (26.8)	7 (14.0)	8 (14.8)
Weakness	133 (26.6)	14 (28.0)	12 (22.2)
Weight change	132 (26.4)	2 (4.0)	2 (3.7)
Apathy	121 (24.2)	7 (14.0)	4 (7.4)
Back pain	112 (22.4)	15 (30.0)	28 (51.9)
Nightmares	99 (19.8)	11 (22.0)	2 (3.7)

Figures in brackets indicate the percentage in the sample who reported the symptom.

Table 4. *Number of veteran symptoms by decade*

Symptoms	1940s	1950s	1960s	1970s
Anxiety (%)	1143 (38.7)	881 (29.8)	519 (17.6)	412 (13.9)
Depression (%)	675 (34.5)	632 (32.3)	368 (18.8)	279 (14.3)
Headache (%)	649 (47.2)	451 (32.8)	167 (12.2)	108 (7.9)
Sleep problems (%)	553 (37.2)	466 (31.4)	265 (17.9)	201 (13.5)
Tremor/shaking (%)	447 (47.6)	277 (29.5)	134 (14.3)	82 (8.7)
Difficulty completing tasks (%)	428 (56.9)	213 (28.3)	91 (12.1)	20 (2.7)
Irritability/anger (%)	386 (33.8)	414 (36.3)	201 (17.6)	139 (12.2)
Dyspepsia (%)	364 (61.5)	149 (25.2)	48 (8.1)	30 (5.1)
Stomach pain (%)	348 (62.4)	94 (17.0)	58 (10.5)	54 (9.9)
Repeated fears (%)	326 (47.7)	195 (28.6)	98 (14.4)	64 (9.4)
Poor concentration (%)	314 (46.3)	206 (30.2)	91 (13.4)	69 (10.2)
Dizziness (%)	311 (58.6)	152 (28.6)	43 (8.1)	25 (4.7)
Muscle pain (%)	272 (42.7)	187 (29.4)	100 (15.7)	78 (12.2)
Shortness of breath (%)	242 (58.2)	88 (21.3)	48 (11.6)	37 (8.9)
Avoidance social contact (%)	238 (35.6)	252 (37.8)	106 (15.9)	70 (10.5)
Exhaustion (%)	220 (72.8)	61 (20.1)	19 (6.3)	4 (1.3)
Restlessness (%)	215 (35.6)	140 (27.3)	88 (17.2)	70 (13.7)
Irregular heartbeat (%)	209 (62.0)	68 (20.2)	35 (10.4)	25 (7.4)
Fatigue (%)	206 (67.3)	75 (24.5)	21 (6.9)	4 (1.3)
Forgetfulness (%)	192 (52.3)	117 (31.9)	34 (9.3)	24 (6.5)
Weakness (%)	176 (47.0)	104 (27.8)	54 (14.4)	40 (10.7)
Weight changes	149 (74.1)	44 (21.9)	7 (3.5)	1 (0.5)
Nightmares (%)	148 (32.0)	127 (27.4)	90 (19.4)	98 (21.2)
Apathy (%)	138 (50.2)	69 (25.0)	38 (13.8)	31 (11.2)
Back pain (%)	127 (36.6)	112 (32.3)	62 (17.9)	46 (13.3)
Total	8476	5574	2785	2011

Note: percentages relate to the proportion of symptoms reported by decade.